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2020

Starting Grants

Prof. Michel Vols



To what extent do national and international legislation and human rights laws protect people from the serious impact of a measure like being evicted from their homes? Professor of Public Order Law Michel Vols has been awarded an ERC Starting Grant to carry out research into this subject.

Consolidator Grants

Prof. Jingyuan Fu



Jingyuan Fu will use the grant for the project ‘BugDrug: Enhancing efficacy of commonly used drugs by manipulating gut microbiome’. She will investigate whether the effectiveness of medicines can be improved by making adjustments to the whole of micro-organisms in the gastrointestinal system (intestinal microbiome).

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2020

Advanced Grants

Prof. Gerard Roelfes

Gerard Roelfes has been awarded an ERC Advanced Grant for his project ‘Designer enzymes featuring unnatural amino acids as catalytic residue’ (DENZUAC). In his project, Roelfes aims to create new ‘designer’ enzymes that feature unnatural amino acids as reactive group. For this, he will make use of technology that allows to expand the genetic code with unnatural amino acids.



Prof. Léon Koopmans

Léon Koopmans receives an ERC Advanced Grant for his project ‘CoDEX The Final 21 cm Cosmology Frontier’. Of this, EUR 1 million will be spent on a new computer system for data processing and storage. This project aims to detect extremely faint radio signals of neutral hydrogen from the first billion years of our universe.



Prof. Erwin de Blok

Erwin de Blok has been awarded an ERC Advanced Grant worth EUR 2.5 million for his project ‘MeerGas: Finding the Origin of Gas in Galaxies with MeerKAT’. With this project, De Blok aims to find the source of the neutral hydrogen gas in galaxies. De Blok and his research group will use extremely sensitive radio observations of nearby galaxies, made with the new MeerKAT radio telescope in South Africa to detect the accreting gas.



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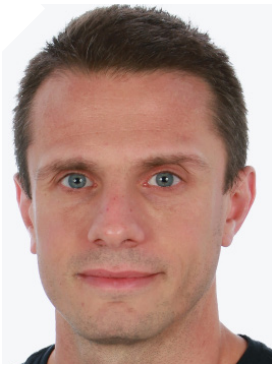
2019

Starting Grants

Prof. Cristóbal Bertoglio



Cristóbal Bertoglio has been awarded an ERC Starting Grant for hi-fi cardiovascular modeling from super-fast MRI. Bertoglio's research project called CardioZoom, aims to make possible quantitative MRIs of thin cardiovascular structures at very short MRI scan times.

Dr Giulia Fulvia Mancini



Giulia Mancini has been awarded a Starting Grant for her project entitled 'Advanced EUV/soft X-ray microscopy in the ultrafast regime: imaging functionality of nanomaterials across length scales' (ULTRAIMAGE) ULTRAIMAGE tackles the need for novel strategies in the characterization of functional nanomaterials, through the study of their fundamental structure-property relationships.

Dr Cyril Moers



UMCG researcher and transplant surgeon Cyril Moers will be conducting research in the coming years into the use of perfusion machines with which donor kidneys can be tested. The insights from the research should lead to nephrologists and surgeons being able to make the right choice more often in the future when it comes to accepting or rejecting donor kidneys.

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2019

Consolidator Grants

Prof. Geert van den Bogaart



With the ERC Consolidator Grant, Geert van den Bogaart is going to research why immune responses against pathogens are made selectively in cases of infection, while autoimmune diseases are prevented.

Prof. Marleen Kamperman



With the ERC Consolidator Grant, Marleen Kamperman will develop new materials by using environmentally friendly processes, like those in nature such as spider webs and the threads of the velvet worm. She hopes to simulate the processes in the laboratory.

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2018

Starting Grants

Prof. Julia Even



Julia Even has been awarded the ERC Starting grant for her project ‘NEXT: Neutron-rich, EXotic, heavy nuclei produced in multinucleon Transfer reactions’. Multi-nucleon transfer reactions using actinide targets hold the potential for the discovery of new isotopes in the transfermium region. These will provide access to information on the evolution of nuclear shell structure and fission half-lives in the heavy element region.

Prof. Louise Meijering



Louise Meijering has been awarded the ERC Starting grant for the project ‘Meaningful Mobility: a novel approach to movement within and between places in later life.’ In this project, she aims to develop and employ an integrative approach to explain mobility practices in later life in relation to well-being. The project focuses on in- and outdoor movement, of healthy and impaired older adults, in the Netherlands, United Kingdom, and India.

Dr Andrea Sangiacomo



Andrea Sangiacomo has been awarded the ERC Starting grant for his project ‘The normalisation of natural philosophy: how teaching practices shaped the evolution of early modern science.’ Early modern natural philosophy underwent dramatic transformations that completely reshaped its conceptual framework and set of practices. The main contention of this ERC project is that teaching practices had a decisive and ‘normalising’ impact on the progressive dissemination, adaptation and selection of rival conceptions of natural philosophy. Normalisation occurs when historical actors collectively present certain tenets as crucial for the study of a discipline, and thus prescribe them as a necessary subject for teaching and learning.

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2018

Dr Sander Wezenberg



Sander Wezenberg has been awarded an ERC Starting Grant for the project “LIGHTPORT” which aims at the development of light-responsive anion receptors that can be used to regulate or induce transmembrane transport. Anion transport, which in cells is mediated by transport proteins, is essential to many biological processes. Dysregulation of this transport has been associated to various diseases and therefore, chemists endeavor to develop artificial receptors that imitate the function of natural transporters. This ERC project will address the challenge of integrating dynamic, stimuli-responsive behavior in synthetic receptor systems, which is a key contemporary challenge.

Consolidator Grants

Prof. Rudolf de Boer



Rudolf de Boer is Professor in Translational Cardiology at the Faculty of Medical Sciences/UMCG. De Boer will use the ERC Grant to conduct research into the interaction between heart failure and the emergence of cancer. The treatment for heart failure has improved, but the mortality rates remain high. It has become clear over the past few years that patients with heart failure often die of cancer, but this aspect has received little attention. De Boer will research whether different types of heart failure produce direct or indirect effects on the emergence of various types of cancer. It is expected that this will lead to the identification of factors that influence tumour growth, but possibly also to known kidney, liver and lung diseases that often occur alongside heart failure.

Prof. Helga de Valk

Helga de Valk is honorary Professor of Migration and the life course at the Faculty of Spatial Sciences. Her research focusses on the demographic characteristics and behavior of migrant populations. De Valk was awarded the ERC Grant for her research Migrant youth mobility in Europe: Patterns, processes and consequences.



Advanced Grants

Prof. Franjo Weissing

Professor of Theoretical Biology Franjo Weissing has been awarded an ERC Advanced Grant. Weissing will use the grant to research the evolution regulation networks. The ERC project is divided in sub-projects that cover concrete questions from various disciplines. In times of “global warming”, which organisms can still adapt to changing conditions? How does the immune system adapt to the spectrum of pathogens it is confronted with? How has the ability to learn evolved and what can we conclude about the structure of our brains and our system of emotions?



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2017

Starting Grants

Dr Jana Hönke



Jana Hönke has been awared the ERC Starting grant for the project INFRAGLOB. The new, 5-year INFRAGLOB project will research how models and experiences of actors from the Global South (i.e., Africa, Asia, Latin America) redefine the governance of economic hubs globally. The INFRAGLOB team will analyse the ideas driving Chinese and Brazilian management of large-scale port and mining projects, and conduct multi-sited ethnographic research in Mozambique, Tanzania, Brazil and China to establish how these concepts are enacted, negotiated and disregarded in practice. This project will provide a unique understanding of how the Global South changes practices of governance and business-society relations in a multipolar world.

Dr Irma Mosquera-Valderrama



In the project GLOBTAXGOV, Mosquera-Valderrama investigates the role of the OECD (Organisation for Economic Co-operation and Development) and the EU in international tax lawmaking, and aims to formulate conditions under which both developed and developing countries can adhere to a global tax governance model. ‘A New Model of Global Governance in International Tax Law Making’ will assess the feasibility and legitimacy of the current model of global tax governance.

Prof. Panos Merkouris



Panos Merkouris’ project called ‘TRICI-Law: The Rules of Interpretation of Customary International Law’ revolves around the rules of interpretation of customary international law (CIL). CIL, treaties and general principles are the main sources of international law. However, whereas for treaties rules of interpretation have been enshrined in the 1969 Vienna Convention on the Law of Treaties and continue to be the object of analysis and debate even today, the rules of interpretation of CIL have not been critically studied before. The aim of this project is to determine the existence and to examine the content of the rules that govern the process of interpretation of CIL and to shed light on how these rules differ from those governing the interpretation of treaties both across different fields of international law and through time.

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2017

Prof. Tina Kretschmer



We know from previous work that peer relationships in adolescence have consequences for psychological wellbeing in adulthood, but this project looks further than that. Kretschmer proposes that the consequences of peer experiences are of much greater significance for one's development. In this project she explores the transmission of peer experiences across social contexts by looking at how one's adult romantic relationships and friendships are affected by earlier peer experiences. Additionally, she studies whether peer experiences are passed on across generations and affect one's offspring via environmental, genetic, and epigenetic pathways. The results of this project will greatly improve our knowledge on the role of peers for social development.

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2017

Consolidator Grants

Prof. Catarina Dutilh Novaes



Catarina Dutilh Novaes has been awarded the ERC grant for the project 'The Social Epistemology of Argumentation.' Dutilh Novaes has expertise in a wide range of topics, in particular the philosophy and history of logic and philosophy of mathematics. From 2011 to 2106 she led the NWO-VIDI project 'The Roots of Deduction', an investigation on the origins and practices of deductive reasoning, especially within mathematics. Her research is characterized by engagement with the work of cognitive scientists and psychologists, an approach that she will continue to pursue in her ERC project.

Prof. Syuzanna Harutyunyan



Syuzanna Harutyunyan is specialized in the field of Synthetic Organic Chemistry. Harutyunyan joined Professor Feringa's research group in 2003 as a postdoctoral research fellow. She now concentrates her research on the development of new and more efficient chemical processes that can be used in the pharmaceutical, fine chemical or agrochemical industries.

Prof. Ming Cao



Ming Cao conducts ground-breaking research in the field of control systems that allow groups of autonomous robots to work together. In order to have autonomous cars and robots function effectively and safely, they must be able to take each other's actions into account. Cao works on this development with colleagues from sociology, mathematics and biology. The resulting algorithms he develops for robots are partly inspired by the movements of animals, particularly fish and birds, who also act in formation.

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2017

Advanced Grants

Prof. Clara Mulder



Internal migration (long-distance moves within national borders) is generally assumed to be beneficial to individuals and households. This FamilyTies project has been designed to make a decisive contribution to a much more comprehensive explanation of internal migration and its labour-market outcomes than current, mainly economic, explanations have achieved thus far. It introduces a novel perspective on internal migration and immobility, which focuses on the role of family outside the household in deciding on whether and where to relocate, and which takes into account contemporary family complexity: the family ties perspective. The aim is to identify the role of family ties in internal migration, immobility and labour-market outcomes.

Prof. Sijbren Otto



Can we synthesize life de-novo in the lab? This is one of the Grand Challenges of contemporary science. Overall objective of this ERC project is to set important steps in turning chemistry into biology by building fully synthetic chemical systems that contain and integrate some of the essential elements of life: replication, metabolism and compartmentalization. Functional coupling of any of life's essential elements has not been achieved, at least not without making use of biomolecules. The aim is to achieve such coupling and develop fully chemical systems to become increasingly life-like.

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2016

Starting Grants

Prof. Peter van der Meer



Peter van der Meer is researching the early stages of heart failure, before it causes irreparable damage. As it is too dangerous to remove heart tissue from patients, and impossible during the early stages of heart failure, he is using pluripotent stem cells: skin cells that are reprogrammed to become stem cells. This has enabled researchers to generate a piece of beating heart tissue from patients with heart failure. By exposing this tissue to triggers, such as chemotherapy which is harmful to the heart, Van der Meer is trying to identify new pathways that may influence the development of heart failure.

Prof. Sasha Zhernakova



Sasha Zhernakova is researching the development of gut flora in new-born babies. At birth, babies only have a limited number of bacteria and viruses in their guts. These numbers increase during the first twelve months, eventually forming a stable colony of gut flora. Zhernakova is trying to discover how viruses and bacteria develop and how this affects the health of babies. She is studying both genetic factors and environmental factors, such as diet, vaccinations and disease. For her research, Zhernakova is using data from LifeLines-Next, a project that collects data from 1,500 babies during the first year of their life.

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2016

Consolidator Grants

Prof. Giovanni Maglia



Associate Professor in Chemical Biology Giovanni Maglia has received an ERC Consolidator Grant for his project on the design of new nanopores. He wants to use these pores to identify proteins, which may result in new diagnostic devices. His aim is to construct a pore that will recognize proteins passing through it. Then, using the kind of devices that are already constructed to study DNA with nanopores, it will be possible to recognize specific proteins in biological samples. Such a device could be used for medical diagnostics. For Maglia, the most important aspect is to prove it is possible to design pores from scratch. Nanopores can be used for different practical applications and for research purposes, but so far we are limited by the type of pores that nature provides. Finding a way to design them will remove this limitation.

Dr Romana Schirhagl



Schirhagl is researching the behaviour of free radicals in the cell as the result of stress. These radicals play an important role in the body, with both positive and negative effects. For example, they help to combat viruses and bacteria, but they also damage healthy cells. Free radicals are very short-lived, making them difficult to study. Schirhagl has found a technique that uses nanodiamonds (tiny particles of diamond), which react to the magnetic fields of free radicals by changing fluorescence. In addition, she is studying the way that free radicals react when, for example, they are under attack from bacteria. She hopes to gather new information about the ageing process of cells.

Prof. Pratika Dayal



Astronomer Pratika Dayal is researching dark matter and the emergence of galaxies in the epoch of reionisation. The ERC project is called DELPHI (dark matter and the emergence of galaxies in the epoch of reionisation). This project aims to build a complete and coherent theoretical model to understand the key physics underlying galaxy formation and evolution in the first billion years. In addition, Dayal aims to use these small galaxies to shed light on the unknown nature of “dark matter”, which makes up 80% of all matter in the universe. The earliest galaxies are the “Rosetta Stone” of modern astrophysics: they are crucial to understanding the beautiful, complex universe we see today.

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2015

Starting Grants

Dr Katalin Barta



Katalin Barta has been awarded an ERC Starting Grant. During this research she will develop novel, fully sustainable catalytic methods for the conversion of renewable resources to industrially relevant bulk and fine chemicals. The approach combines several disciplines including homogeneous and heterogeneous catalysis in order to address key fundamental challenges in the field.

Consolidator Grants

Dr Karina Caputi



Karina Caputi has received an ERC Consolidator Grant. This grant will allow her to build a team to study galaxy evolution in the early universe with her on-going Spitzer Exploration Science Program SMUVS, and work on the scientific preparation and first observations to be carried out with the forthcoming James Webb Space Telescope (JWST). This telescope will be the largest telescope ever sent to space by the time of its launch in 2018, and one of its main goals is discovering the first galaxies that were formed in the universe and the building blocks of today's massive galaxies at early cosmic times.

Prof. Marcel van Vugt



Marcel van Vugt is Professor of Molecular Oncology at the UMCG. He has been awarded the ERC grant for his research into replication stress. Tumour cells make many errors during cell division. A large number of these occur during the duplication of their DNA, a process known as DNA replication. The theory is that this occurs more often with certain tumours, namely very aggressive tumours such as triple-negative breast cancer and ovarian cancer. This phenomenon is called replication stress. In his research Van Vugt will study how tumour cells manage to survive large amounts of replication stress. He will investigate which genes play a role in this and whether there is therapeutic value in inhibiting these in cancer cells. He will also develop a method to measure replication stress in tumour tissue.

Prof. Marieke Wichers



Marieke Wichers is Professor of Dynamics of Emotion Regulation and Psychopathology at the UMCG. She studies the warning signs for tipping points in psychiatric symptoms. Psychiatric symptoms fluctuate over time. For instance, a patient who suffered from a depressive episode in the past may feel much better for a while, but at a certain point may suddenly relapse. A crucial question is whether it is possible to predict this type of sudden tipping point. Wichers will study whether these shifts in psychiatric symptoms are preceded by warning signs. This would then provide patient-specific information about an impending tipping point in symptoms. In her study she will investigate whether psychiatric disorders behave like what are known as complex dynamic systems.

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2015

Advanced Grants

Prof. Andreas Herrmann



The European Research Council (ERC) awarded an ERC Advanced Grant of EUR 2.5 million to prof. Andreas Herrmann for his research program on Supramolecular Protective Groups Enabling Complex Drug Molecules and Bioimaging Reagents. In his ERC project, Andreas Herrmann will research a way to make complex molecules in a simple way that can be used as a basis for developing new drugs. To this end, Herrmann wants to use so-called aptamers, small DNA or RNA molecules that bind specifically to a certain part of a molecule. In doing so, they shield a piece of the molecule, making it easy to modify the exposed parts in a targeted manner via chemical modification.

Prof. Ben Feringa



In this ERC project, Ben Feringa will build on the unique properties of unidirectional light-driven molecular motors. The aim is to be able to control the function of the motors and switch them. The focus here is on motors that can operate in a water environment. Light-driven molecular motors differ from most molecular switches: they can assume a series of functional positions and do so in response to light. When the light source is continuous, it creates a continuous rotational motion that can be used to create a dynamic system or a switchable material that can be unbalanced. Feringa has set up an ambitious research programme that should lead to a way to control complex nanomechanical systems. Ultimately, this could provide new, innovative applications ranging from materials that respond to a stimulus to the control of biomolecular systems in space and time.